Attachment 6.1

Cost escalation forecasts for Western Power's Access Arrangement 5

Revised proposed access arrangement information

15 November 2022

Access Arrangement (AA) for the period 1 July 2023 to 30 June 2027

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Synergies
ECONOMIC CONSULTING

Cost escalation forecasts for Western Power's Access Arrangement 5

A report prepared for Western Power in response to ERA's AA5 Draft Decision

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Executive Summary

The purpose of this short report is to recommend updated cost escalator forecasts for the 2022/23 to 2026/27 regulatory period for use by Western Power in its response to the Economic Regulation Authority's (ERA's) Draft Decision on its Access Arrangement 5 (AA5).[1]

Table 1 presents our updated forecasts.

Table 1 Updated AA5 cost escalation forecasts

Variable	2022-23	2023-24	2024-25	2025-26	2026-27	AA5 forecast average
CPI – Australia (break even method)	2.84%	2.84%	2.84%	2.84%	2.84%	2.84%
WA Treasury CPI used in real WPI calculation	2.85%	2.85%	2.85%	2.85%	2.85%	2.85%
Nominal WPI – EGWWS Western Australia	3.15%	3.15%	3.15%	3.15%	3.15%	3.15%
Real WPI – EGWWS Western Australia	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%
Materials escalation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Opex productivity (upper bound)	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%

Note: CPI means Consumer Price Index; WPI means Wage Price Index; and EGWWS means Electricity, Gas, Water and Waste Services
Source: Synergies

Our updated annual CPI forecast of 2.84% is based on applying the 'breakeven' methodology using a 5-year term aligned to the AA5 regulatory period and Australian government bond yield data reported at 31 August 2022.[2]

[1] Synergies' original AA5 cost escalators report for Western Power, 'Forecast cost escalators for Western Power's 2022-27 regulatory period' was included as Attachment 7.3 of Western Power's AA5 Access Arrangement Information.

[2] The breakeven method is based on calculating the difference between nominal and inflation-indexed bond yields to determine an estimate of inflation expectations over the relevant period.

The real labour cost escalation (real Wage Price Index (WPI)) forecast is based on ERA's standard methodology assuming an Electricity, Gas, Water and Waste Services (EGWWS) premium of 0.4% per annum.

Materials escalation is assumed to increase in line with the annual CPI forecast.

Operating cost (opex) productivity is assumed to increase at an upper bound rate of 0.5% per annum consistent with the AER's opex productivity assumption used in its base-step-trend opex forecasting methodology in its most recent revenue determinations (including for Powerlink and Transgrid). This forecast implies forecast annual growth in opex productivity is somewhat higher than our real labour escalation forecast (0.5% versus 0.29%).

Contents

Figures and Tables

1 CPI forecasts

The purpose of this section is to present our updated annual CPI forecasts for the 2022-27 period.

1.1 Our updated 2022-27 forecasts

Our annual inflation forecasts that are based on applying the break-even methodology for 5-year and 10-year time horizons are shown in Table 2. ERA's Rate of Return Guideline requires an inflation forecast that is aligned in term to the relevant 5-year regulatory period. The 10-year forecast is presented for completeness.

Table 2 Break-even inflation estimates at 31 August 2021

Forecasting horizon	Break-even estimate
5-year inflation forecast (used for Western Power)	2.84%
10-year inflation forecast	2.37%

Note: These estimates are based on a 20-day average to 31 August 2022, consistent with the averaging period previously adopted by the ERA for Western Power.

Source: Synergies' analysis using RBA data.

1.2 Recommendation

Table 3 presents our updated annual CPI forecasts for the 2022-27 period.

Table 3 CPI escalation forecasts

	2022-23	2023-24	2024-25	2025-26	2026-27
CPI	2.84%	2.84%	2.84%	2.84%	2.84%

Source: Synergies

2 Real labour cost forecasts

The purpose of this section is to present our WPI EGWWS forecasts for the 2022-27 period used as the estimate of real labour cost escalation in the opex base-step-trend forecasting methodology.

2.1 Our forecasting approach

We have estimated WPI and the real labour cost escalation factor using the same approach that ERA applied for Western Power's AA4 regulatory period. The ERA's approach to the determination of the real labour escalation factor consists of five steps:[3]

1. Estimating WA WPI for the regulatory period based on an average of latest WA Treasury forecasts.
2. Estimating the premium (if any) of EGWWS WPI over the Australian All Industries WPI.
3. Adding together the WA WPI forecast and the EGWWS premium to derive the nominal labour cost escalation forecast.
4. Estimating forecast CPI using WA Treasury forecasts using the same method applied for estimating WA WPI forecasts (in Step 1).
5. Deducting the CPI forecast from the nominal labour cost escalation forecast to derive the real labour (real WPI) cost escalation forecast.

2.2 Our updated 2022-27 forecasts

We apply each of the above five steps to develop our nominal and real WPI EGWWS forecasts for the 2021/22 (last year of AA4 period) and 2023-27 period.

2.2.1 Step 1: Western Australian WPI forecast

Table 4 WPI growth estimate based on ERA approach

	2021-22 Estimated Actual	2022-23 Budget Year	2023-24 Outyear	2024-25 Outyear	2025-26 Outyear	Average
WPI growth	2.00%	2.75%	3.00%	3.00%	3.00%	2.75%

Source: WA Treasury Economic Forecasts – Major Economic Aggregates

[3] ERA (2018). Final decision on proposed revisions to the access arrangement for the Western Power network 2017/12-2021/22, 20 September, p.100.

2.2.2 Step 2: Estimated premium of EGWWS WPI over Australian All Industries growth estimate

In Western Power's AA4 regulatory period, the ERA allowed an EGWWS premium of 0.2%. The ERA did not apply an EGWWS premium in its recent decisions for ATCO or Dampier Bunbury Pipeline because they did not submit a non-zero productivity factor offsetting their wage growth forecast.

Proceeding on the basis that Western Power will submit a non-zero productivity factor in its response to ERA's Draft Decision, we consider that the precedent above is not directly applicable to Western Power. Nevertheless, the ERA has made clear that the inclusion of a productivity factor does not automatically guarantee the inclusion of an industry premium to real wage growth.[4] The ERA considers that a business with no productivity growth is unlikely to be able to sustain real wage growth at above average rates in the long term. Further, a business with productivity growth should not just automatically include an industry real wage premium as a result of a productivity factor being applied to expenditure.

Estimates of the EGWWS premium for various averaging periods are shown below. Table 5 is taken from our original AA5 cost escalators report for Western Power and includes data up to 2020/21. Table 6 is based on the latest data set including one more year, 2021/22.

Table 5 Original EGWWS WPI growth premium over Australian All Industries WPI over time

Averaging period	EGWWS WPI growth	All Industries WPI Growth	Premium
2000-2021	3.5%	3.1%	0.5%
2005-2021	3.4%	3.0%	0.4%
2010-2021	2.9%	2.5%	0.4%
2015-2021	2.3%	2.0%	0.3%
2017-2021 (AA4)	2.2%	2.0%	0.2%

Source: ABS, Synergies calculations

Table 6 Updated EGWWS WPI growth premium over Australian All Industries WPI over time

Averaging period	EGWWS WPI growth	All Industries WPI Growth	Premium
2000-2022	3.5%	3.0%	0.4%
2005-2022	3.3%	3.0%	0.4%
2010-2022	2.9%	2.5%	0.3%
2015-2022	2.3%	2.1%	0.2%

[4] ERA (2021). Final decision on proposed revisions to the Dampier to Bunbury Natural Gas Pipeline access arrangement 2021 to 2025, 1 April, p.121.

Averaging period	EGWWS WPI growth	All Industries WPI Growth	Premium
2017-2022 (AA4)	2.2%	2.1%	0.1%

Source: ABS, Synergies calculations

While there is evidence that the EGWWS premium over All Industries growth has narrowed over time, wages growth in the EGWWS sector persistently exceeds that in the economy as a whole when viewed across an array of averaging periods. This reflects the relatively high skills of EGWWS workers and their substitutability in relation to comparable work performed in other key sectors like mining and construction.

In particular, while the average wage premium over AA4 (to date) has been 0.1%, the average premium since 2010 has been 0.3%, higher than the ERA's allowed premium of 0.2% in the AA4 period.[5] Having regard to the updated and long term data going back to 2000, we still consider that a premium of 0.4% is reasonable given the expected strengthening of labour market conditions in the AA5 regulatory period arising from strong growth in infrastructure activity across the energy, water and construction sectors.

Accordingly, we have adopted an EGWWS premium of 0.4% for use in the real labour cost escalation forecast, which captures the effect of stronger labour market conditions prior to the AA4 period, which we consider are likely to be most reflective of labour market conditions in the AA5 regulatory period.

2.2.3 Step 3: Nominal labour cost escalation forecast

The nominal labour cost escalation forecast is calculated by summing the WA WPI estimate from Step 1 (2.75%) and the estimated EGWWS premium from Step 2 (0.40%).

The resulting nominal labour cost escalation forecast is **3.15%.**

2.2.4 Step 4: CPI estimate for use in real labour cost escalation forecast

The CPI forecast that ERA uses in calculating its real labour cost escalation forecast is based on latest WA Treasury forecasts shown in Table 7.

Table 7 CPI growth estimate based on ERA approach

	2021-22 Estimated Actual	2022-23 Budget Year	2023-24 Outyear	2024-25 Outyear	2025-26 Outyear	Average
CPI growth	4.00%	2.75%	2.50%	2.50%	2.50%	2.85%

[5] The ERA's final decision for Western Power was not explicit about the averaging period that had been used to reach this premium.

Source: WA Treasury Economic Forecasts – Major Economic Aggregates

2.2.5 Real labour cost escalation forecast

The ERA uses the following formula to calculate real labour cost escalation:[6]

$$Real\ labour\ escalation\ growth\ rate\ \% = \frac{1+Average\ growth\ in\ WPI}{1+Average\ growth\ in\ CPI} - 1 * 100$$

Substituting our WPI estimate (inclusive of EGWWS premium) and CPI estimate from the preceding sections gives the following estimate for the real labour escalation growth rate:

$$Real\ labour\ escalation\ growth\ rate\ \% = \frac{1+3.15\%}{1+2.85\%} - 1 * 100 = \ 0.29\%$$

Therefore, our forecast of the real labour cost escalation growth rate for the 2022-27 period is **0.29**%.

2.3 Weighting of real labour cost escalator

In its most recent revenue determinations, the AER applies a real labour cost escalator benchmark weighting of 59.2% for Distribution Network Service Providers (DNSPs)[7] and 70.4% benchmark weighting for Transmission Network Service Providers (TNSPs)[8], which recognises the higher labour component of transmission services opex.

We previously recommended that these contemporary benchmark weightings approved by the AER be adopted by Western Power in developing its distribution and transmission opex and capex forecasts for the 2022-27 regulatory period. The ERA's expenditure review consultant, Engevity, supported use of these weightings.[9]

2.4 Recommendation

Table 8 presents our updated real labour cost escalation forecasts for the 2022-27 period.

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6 ERA (2021). Final decision on proposed revisions to the Dampier to Bunbury Natural Gas Pipeline access arrangement 2021 to 2025, 1 April, p.119.

7 AER (2021), Final Decision, Final Decision, Powercor Distribution Determination 2021 to 2026, Attachment 6: Operating expenditure, April 2021, p 25. The AER's final decisions for the Victorian DNSPs are its most recent distribution determinations.

8 AER (2021), Draft Decision, Powerlink Queensland, Transmission Determination, 2022-27, Attachment 6: Operating expenditure, September 2021, p 17. The approved real labour escalator weighting in this draft decision is the same as that in the AER's draft decision for AusNet's transmission network released in June 2021.

9 Engevity (2022), Western Power AA5 Expenditure Proposal Review, Attachments, p 114

Table 8 Real labour escalation forecasts

	2022-23	2023-24	2024-25	2025-26	2026-27
Real labour cost	0.29%	0.29%	0.29%	0.29%	0.29%

Source: Synergies

We recommend a real labour cost escalator weighting of 59.2% for Western Power's distribution network and 70.4% for Western Power's transmission network be applied in developing the respective opex and capex forecasts for the 2022-27 period.

3 Real materials cost escalation

The purpose of this section is to present our real materials cost escalation forecasts for the 2022-27 period.

3.1 Our updated 2022-27 forecasts

Consistent with our original report for Western Power and for the reasons included in that report, no materials cost escalation is proposed in the AA5 period. This includes because of the difficulty in identifying and/or developing a materials price index relevant to the Australian electricity network sector that is likely of broad acceptance.

The materials cost escalators have a relatively small effect on Western Power's forecast expenditure as they reflect only forecast increases that are more than forecast CPI inflation. Once the AA5 regulatory period commences, a form of inflation protection is provided to Western Power by reflating the ERA-approved real target revenues using actual (lagged) CPI inflation via the annual price setting process.

However, CPI inflation may not always be a good proxy for asset, equipment and materials cost inflation so Western Power is likely to face a residual inflation risk exposure over the AA5 regulatory period.

3.2 Recommendation

Table 9 presents our real materials escalation forecasts for the 2022-27 period.

Table 9 Real materials cost escalation forecasts

	2021-22	2022-23	2023-24	2024-25	2025-26	2025-26	2026-27
Real materials cost	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: Synergies

4 Opex productivity forecasts

The purpose of this section is to present our opex productivity forecasts for the 2022-27 period.

4.1 Our original 2022-27 forecasts

Our original cost escalation report for the AA5 period proposed an opex productivity forecast range of 0% to 0.5% with Western Power's choice of forecast dependent on whether it proposed to incorporate forecast savings into its AA5 opex forecasts outside of the opex productivity factor used in the base-trend opex forecasting methodology. Synergies recommended a 0.25% opex productivity forecast, the mid-point of our range.

4.2 ERA's Draft Decision

In the draft decision, based on advice from its consultant, Engevity, the ERA considered it reasonable to expect a service provider efficiently minimising costs would seek to achieve a productivity factor of 2% per annum in the AA5 regulatory period. The ERA argued this would require Western Power to deliver operating expenditure efficiencies more consistent with other electricity network operators in Australia.[10]

Engevity recommended a productivity factor of 2% per annum in part to compensate for greater productivity from Western Power's proposed investments in Standalone Power Systems (SPS), as well as to recognise business efficiency improvements that are realised within the short depreciation life of proposed ICT system investments.[11]

Engevity also reported that the AER benchmarking data for 2020 shows transmission network average productivity at around 1.7% per annum and average distribution network productivity at around 1.2% per annum. Furthermore, Engevity argued that the AER's measured opex productivity growth rate over the past 10 years (at 5.1% for 2020 and 3.1% per annum for 2012-2020) supported its view that a substantially higher rate of productivity should be applied than Western Power's proposed 0.25% per annum forecast.[12]

On this basis, Engevity considered that a more aggressive opex productivity target of 2% per annum over the AA5 period would address both the issue of the 'low' productivity forecast proposed by Western Power, as well as ensuring that a non-trivial

[10] ERA (2022). Draft decision on proposed revisions to the access arrangement for the Western Power Network 2022/23 – 2026/27 - Attachment 6: Operating expenditure, 9 September, p.17.

[11] Engevity (2022). Western Power AA5 expenditure proposal review – Attachments, August, p.85.

[12] Engevity (2022). Western Power AA5 expenditure proposal review – Attachments, August, p.94.

allowance for efficiencies for AA5 forecast investment is embedded in the opex forecast.[13]

4.3 Response to ERA's Draft Decision

Synergies has several concerns about ERA's Draft Decision to apply a 2% per annum productivity forecast to Western Power's transmission and distribution opex forecasts in the 2022-27 regulatory period.

4.3.1 Basis of the AER's opex productivity forecast

Engevity's report discusses the AER's approach to estimating opex productivity and considers that Western Power's opex productivity forecast should be based on the 'efficient frontier' distribution networks in the National Electricity Market (NEM).

In contrast, we considered it more appropriate for Western Power's productivity growth factor to be informed by data from those networks that bear the closest resemblance to it (noting that even these comparators are imperfect), while adjusting for any unusual annual movements in the reported data. We also had regard to relevant regulatory precedent, including the AER, which has invested most effort amongst Australian economic regulators in estimating productivity growth of the EGWWS sector over time. This resulted in our opex productivity range of 0-0.5% per annum.

The key point is that the AER's opex productivity forecast is intended to be a broad measure of industry productivity that is informed by trends in the electricity industry and other comparable sectors.

In this regard, in its 2019 final decision on forecasting productivity growth for electricity distributors, the AER considered that:[14]

> It is not appropriate at this time to use opex productivity results deterministically to forecast productivity going forward. It is appropriate to examine productivity trends more broadly, including over the long-term and in comparator sectors. This broader approach of drawing on a wider range of information sources is also consistent with the recommendations of the Australian Competition Tribunal (2016).

[13] Engevity (2022), Western Power AA5 expenditure proposal review – Attachments, August, p.95.

[14] AER (2019), Forecasting productivity growth for electricity distributors – Final decision paper, 8 March, p.42.

This statement from the AER makes clear that observed opex productivity results are not to be relied upon deterministically in the way that Engevity has applied in its assessment of Western Power. The AER has used an opex productivity forecast non-deterministically in its opex base-step-trend forecasting methodology in all of its revenue determinations since its 2019 final decision and we do not expect it to change this approach. The inherent variability of productivity estimates over time is reflected in the wide range of estimation techniques that the AER uses in its annual benchmarking reports for the NEM distribution and transmission networks with no reliance on a single preferred estimation technique.

Rather, in its 2019 final decision, the AER considered that the two most useful sources of information to inform the opex productivity growth estimate were:[15]

- Time trends estimated in econometric models for the gas distribution industry relied upon by the AER in previous gas distribution determinations, which provided opex productivity estimates of between 0.43 to 0.7 per cent.
- Labour productivity forecasts for the utilities sector (with estimated opex productivity of between 0.3 to 0.7 per cent).

These sources of information were favoured based on their performance against the AER's five criteria for selecting productivity information sources:

- **Factor 1**: it reflects a reasonable estimate of the underlying productivity growth achievable by an electricity distribution network, independent from cyclical events and one-off factors (such as step changes) and considering any issues with the estimation approach.
- **Factor 2**: it estimates the shift in the efficiency frontier, and the extent to which it excludes catch-up effects.
- **Factor 3**: it reflects the most recent available data.
- **Factor 4**: it does not create any perverse incentives for distribution networks to not pursue productivity gains if relied upon deterministically.
- **Factor 5**: it is based on a transparent methodology.

The AER's findings in relation to various productivity estimation methods, including four methods applied to electricity and gas distribution networks that it uses in its annual economic benchmarking reports, are replicated in Figure 1.

[15] AER (2019), Forecasting productivity growth for electricity distributors – Final decision paper, 8 March, p.10.

Figure 1 AER summary of available productivity estimates

	Electricity distribution	Electricity distribution	Electricity distribution (undergrounding)	Gas distribution	Labour productivity	Electricity supply chain	Water	International electricity
Estimation method	Opex PFP	Econometric time trend	Econometric coefficient	Econometric time trend	Gross Value Added	Multi Factor Productivity	Efficiency target	Total Factor Productivity
Productivity estimates (%)	0.35 - 0.97	1.2 - 2.2	0.1 - 1	0.43 - 0.7	0.3 - 0.7	1.3	0.25-1	0 - 1
Time period measured	2011-17	2011-17	2011-17	1999-2015	1999-2018	1975-2010	Variable	Variable
Factor 1: Underlying productivity growth	Unclear	Unclear	Yes	Yes	Potentially	Potentially	Potentially	No
Factor 2: Excludes catch-up	Yes	No	Yes	Potentially	Potentially	Limited	Unclear	No
Factor 3: Most recent data	Yes	Yes	Yes	No	Yes	No	No	Yes
Factor 4: Preserves incentives	No	Potentially	No	Yes	Yes	Yes	Yes	Yes
Factor 5: Transparent methodology	Yes	Yes	Yes	Yes	Partially	Yes	No	Yes

Data source: AER (2019)

As a cross-check on the selected opex productivity growth estimate, the AER had regard to regulatory precedent in the water industry, as well as overseas electricity distribution sectors. The AER concluded that these additional sources of information were broadly consistent with a productivity growth factor of 0.5 per cent per annum.[16]

Importantly, the AER's use of its opex productivity forecast in the base-step-trend methodology is not intended to impose a 'productivity' catch-up on networks that are not amongst the best performing networks. This is demonstrated by AER currently applying the same opex productivity forecast (currently 0.5%) to the opex forecasts of all NEM electricity distribution and transmission networks' opex forecasts, as well as to gas transmission pipelines and distribution networks.

As the AER explained in its 2019 final decision:[17]

> The productivity growth factor is not intended to capture the inefficiencies in the costs of an individual distributor. To ensure consumers are not charged for such inefficiencies, we would make an efficiency adjustment to the individual distributor's forecast base opex such that it reflects an efficient forecast. Since we consider the scope for catch-up productivity as part of our assessment of an individual distributor's base opex, the productivity growth factor that we use in trending forward base opex should only capture the productivity growth that would be achieved by a distributor on the efficiency frontier.

16 AER (2019). Forecasting productivity growth for electricity distributors – Final decision paper, 8 March, p.11.

17 AER (2019). Forecasting productivity growth for electricity distributors – Final decision paper, 8 March, p.8.

The industry-wide nature of the AER's productivity forecast also means that it is not attempting to capture potential project-specific efficiencies of individual networks' forecast opex or capex programs in a regulatory period. While recognising Engevity's view that such efficiencies may arise from Western Power's AA5 capex program (eg. in relation to the Advanced Meter Infrastructure (AMI) and SPS roll-outs), we do not consider that the opex productivity trend estimate is the appropriate place to recognise it.

We understand that Western Power has included a negative opex step change to recognise the reduction in physical meter readings arising from the AMI program. For the SPS program, we understand Western Power has removed the lines to be decommissioned from the network growth factor thereby reducing opex through that mechanism. We consider this is the better way of identifying project-specific efficiencies to avoid the potential for double counting in the opex productivity factor that is intended to capture only industry-wide trends.

Further, we consider that the gain sharing mechanism applied in relation to Western Power's opex is the most appropriate way of facilitating and ultimately sharing with customers the benefits of future opex productivity/efficiency gains.

4.3.2 Productivity data is very sensitive to chosen reporting period

There is significant volatility in opex/capex productivity estimates depending on the reporting time frame, the number of networks examined, and the estimation technique applied.

Engevity's 5-year averages appear quite sensitive to whether FY2015 is included or not, particularly for SA Power, Essential Energy and Powercor, who had very large opex productivity increases in FY2016. Following Economic Insight's approach[18], our FY2016-FY2020 average was essentially based on the point-to-point change in productivity divided by the number of years. When Engevity use the FY2016-FY2020 period, it seems to be averaging the growth rates for each of FY2016, FY2017, FY2018, FY2019, FY2020, so it is implicitly including FY2015 (an outlier year) in its average, which pushes up the observed 5-year growth rate.

Recognising frequent variability in year-to-year estimates, productivity needs to be averaged over longer periods to reveal meaningful trends. However, even when doing so, there is still potential for quite large variations in estimated productivity to emerge. Table 10 lists the three averaging periods that Engevity used in its advice to the ERA

[18] Economic Insights is the AER's economic benchmarking adviser.

(FY2006-FY2020, FY2016-FY2020, and FY2006-FY2016) using the Opex Multilateral Partial Factor Productivity (MPFP) technique,[19] along with three alternative averaging periods that we have selected (FY2010-FY2020, FY2015-FY2020, FY2017-FY2020).

Table 10 Comparison of Engevity and alternative averaging periods for Opex Multilateral Partial Factor Productivity (MPFP) (%)

	Engevity averaging periods			Alternative averaging periods		
	FY2006-FY2020	FY2016-FY2020	FY2006-FY2016	FY2010-FY2020	FY2015-FY2020	FY2017-FY2020
Evoenergy	3%	14%	-4%	4%	13%	-3%
Ausgrid	4%	12%	-1%	5%	8%	12%
Citipower	-1%	3%	-3%	1%	4%	4%
Endeavour Energy	2%	7%	-1%	5%	7%	11%
Energex	1%	6%	-2%	2%	4%	3%
Ergon Energy	2%	1%	3%	1%	-2%	2%
Essential Energy	0%	2%	-2%	2%	2%	-4%
Jemena	1%	3%	1%	0%	3%	5%
Powercor	1%	4%	-1%	1%	4%	1%
SA Power	-1%	4%	-4%	-1%	4%	1%
AusNet Services	-2%	2%	-4%	0%	1%	5%
TasNetworks	0%	-2%	2%	2%	2%	-1%
United Energy	2%	4%	0%	1%	5%	8%
All networks	**0%**	**3%**	**-2%**	**2%**	**4%**	**3%**

Source: Engevity, Synergies' calculations

Table 10 demonstrates that, due to the sensitivity of the different averaging periods, a wide range of annual productivity growth rates (between -2% and 4%) could potentially be justified by applying different averaging periods to estimated opex MPFP data of the NEM electricity distribution networks. Consequently, the choice of productivity growth rate is potentially misleading if sole or primary weight is placed on a single productivity estimation method (in this case the opex MPFP method), without considering a broader range of information.

4.3.3 AER's current opex productivity forecast

The AER's current preferred opex productivity estimate is 0.5% per annum, which it has applied in recent Powerlink, AusNet, APA Gas (Roma to Brisbane Pipeline) and

[19] The opex multilateral partial factor productivity (MPFP) estimate is a productivity index number technique. It is related to multilateral total factor productivity (MTFP). MTFP examines the overall productivity of using all chosen inputs in producing all chosen outputs. In contrast, MPFP examines the productivity of either opex or capital in isolation in producing all chosen outputs. These indexes allow comparisons of absolute levels and growth rates of the measured productivity.

Transgrid determinations so far in 2022. These are all transmission network determinations as there have been no distribution network determinations this year. However, an opex productivity forecast of 0.5% per annum was also used in the most recent electricity distribution determinations made in 2021 in relation to the Victoria DNSPs.

Further to our analysis in section 4.3.2, we consider the AER's 2019 final decision paper on network productivity estimation as being its most detailed analysis of what the opex productivity estimate should be.[20] This paper substantiated a current estimate of 0.5% per annum (the recommended upper bound from our original report).

For this reason, we consider that 0.5% per annum remains valid as the upper bound annual opex productivity forecast for Western Power in the AA5 period.

4.4 Recommendation

Table 9 presents our recommended upper bound opex productivity forecast of 0.5% per annum for the 2022-27 period.

We consider that our productivity forecast should be applied in relation to Western Power's transmission and distribution opex forecasts.

Table 11 Opex productivity forecasts

	2021-22	2022-23	2023-24	2024-25	2025-26	2025-26	2026-27
Opex productivity	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%

Our opex productivity upper bound forecast addresses ERA's statement in its Draft Decision that the real labour cost escalation forecast should be no higher than the assumed rate of productivity growth.[21] Our real labour cost escalation forecast of 0.29% is somewhat lower than the updated 0.5% upper bound opex productivity forecast.

[20] AER (2019), Forecasting productivity growth for electricity distributors – Final decision paper, 8 March

[21] ERA (2022), Draft decision on proposed revisions to the access arrangement for the Western Power Network 2022/23 – 2026/27 Attachment 6: Operating expenditure, p 20